

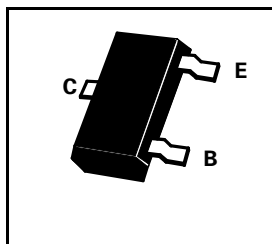
# SOT23 NPN SILICON PLANAR SMALL SIGNAL TRANSISTORS

**BCW31  
BCW32  
BCW33**

## ISSUE 2 - JUNE 1995

PARTMARKING DETAILS – BCW31 – D1 BCW31R – D4  
BCW32 – D2 BCW32R – D5  
BCW33 – D3 BCW33R – D6

COMPLEMENTARY TYPES – BCW31 - BCW29  
– BCW32 - BCW30  
– BCW33 - N/A



## ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CBO}$	32	V
Collector-Emitter Voltage	$V_{CEO}$	32	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Peak Pulse Current	$I_{CM}$	200	mA
Continuous Collector Current	$I_C$	100	mA
Power Dissipation at $T_{amb}=25^{\circ}C$	$P_{tot}$	330	mW
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	$^{\circ}C$

## ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}C$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Base - Emitter Voltage	$V_{BE}$	550		700	mV	$I_C=2mA, V_{CE} = 5V$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$		120 210	250	mV mV	$I_C=10mA, I_B = 0.5mA$ $I_C=50mA, I_B = 2.5mA$
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$		750 850		mV mV	$I_C=10mA, I_B=0.5mA$ $I_C=50mA, I_B=2.5mA$
Collector- Base Cut-Off Current	$I_{CBO}$			100 10	nA $\mu A$	$I_E=0, V_{CB}=20V$ $I_E=0, V_{CB}=20V, T_j=100^{\circ}C$
Static Forward Current Transfer Ratio	BCW31	$h_{FE}$	110	90	220	$I_C=10\mu A, V_{CE}=5V$ $I_C=2mA, V_{CE}=5V$
	BCW32	$h_{FE}$	200	150	450	$I_C=10\mu A, V_{CE}=5V$ $I_C=2mA, V_{CE}=5V$
	BCW33	$h_{FE}$	420	270	800	$I_C=10\mu A, V_{CE}=5V$ $I_C=2mA, V_{CE}=5V$
Transition Frequency	$f_T$		300		MHz	$I_C=10mA, V_{CE}=5V$ $f = 35MHz$
Collector Capacitance	$C_{TC}$			4	pF	$I_E = I_B = 0, V_{CB} = 10V$ $f = 1MHz$
Noise Figure	N			10	dB	$I_C = 200mA, V_{CE} = 5V$ $R_S = 2K\Omega, f = 1KHz$ B = 200Hz

\*Measured under pulsed conditions. Pulse width=300 $\mu s$ . Duty cycle  $\leq 2\%$   
Spice parameter data is available upon request for this device